

PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Docket No: Q64525

Patrick BLANC

Appln. No.: 09/855,499

Group Art Unit: 2618

Confirmation No.: 9426

Examiner: Tu X. NGYUEN

Filed: May 16, 2001

For: METHOD OF ADJUSTING THE TRANSMISSION POWER OF BASE STATIONS
TRANSMITTING IN MACRO-DIVERSITY

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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I. REAL PARTY IN INTEREST

The real party in interest is ALCATEL, by virtue of an assignment recorded by the Assignment Branch of the U.S. Patent and Trademark Office on August 13, 2001, at Reel 012070, Frame 0848. It is further noted that by virtue of a name change of the assignee and corporate restructuring, the current name of the real party in interest is ALCATEL-LUCENT CORPORATION.

II. RELATED APPEALS AND INTERFERENCES

To the knowledge and belief of Appellant, the Assignee, and the undersigned, there are no other appeals or interferences before the Board of Appeals and Interferences that will directly affect or be affected by the Board's decision in the instant Appeal.

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III. STATUS OF CLAIMS

Claims 1-14 are all the claims pending in the application. Claims 1, 2, and 4-11 presently stand rejected under 35 U.S.C. § 103(a). Claims 3 and 12-14 contain allowable subject matter.

The rejected claims 1, 2, and 4-11 are being appealed.

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IV. STATUS OF AMENDMENTS

With the filing of this Brief, all Amendments have been entered and considered by the Examiner.

The Appendix included with this Brief sets forth the claims involved in the appeal and reflects all of the claim amendments that have been entered by the Examiner.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellant's invention relates to a method of adjusting transmission power for base stations transmitting in macro-diversity in a mobile radio-communication system. Appellant's invention further relates to a radio network controller (RNC) and a base station (B node) for adjusting transmission power in the base station transmitting in macro-diversity in a mobile radio-communication system. In Appellant's invention, a reference transmission power for the adjustment is signaled to each base station together with an adjustment period. Each of the base stations periodically adjusts its transmission power to the reference transmission power at said adjustment period (Figs. 1 and 3; page 4, lines 1 to 9 of the specification and page 6, lines 16 to 26 of the specification).

That is, the parameters which are signaled to a base station include a reference power and an adjustment period. The adjustment period is such that a base station periodically adjusts its transmission power to the reference transmission power at this indicated adjustment period. In other words, the reference transmission power is not changed (*i.e.*, not signaled) at each adjustment period. In other words, there is no need to signal updated values frequently even if the reference transmission power has changed. It is only necessary to perform regular adjustments at the adjustment period even if they are performed on the most recently signaled value for the reference transmission power, which does not necessarily correspond to an up-to-date value of the transmission power (page 4, lines 10 to 21 of the specification and page 7, lines 1 to 14).

In conventional techniques, it is known to adjust the transmission power levels of the various base stations to which a mobile station is connected relative to one another so as to optimize the performance of the system, and in particular so as to optimize its capacity. Thus, in general, a radio network controller (RNC) in the UMTS system which serves to control base stations determines the power to be used for transmission at an instant t_{n+1} for each of the base stations on the basis of the transmission powers at an instant t_n as reported by each of said base stations. Advantageously, the same transmission power is determined for the various base stations. The transmission power value(s) as determined in this way (also referred to as reference transmission power(s)) are then signaled by the radio network controller to the various base stations which respond by adjusting their transmission powers on said reference transmission powers (page 2, lines 19 to 37 of the specification).

In the conventional techniques, however the amount of signaling interchange is significantly increased to signal reference transmission power value each time it changes. Thus, use of transmission resources are ineffective (page 3, lines 26 to 32 of the specification). In an exemplary embodiment, however, since the adjustment transmission power is transmitted with an adjustment period, the base stations can periodically adjust their power to the signaled reference transmission power regularly using the adjustment period. In other words, there is no need to signal relatively frequently with up-to-date value (page 4, lines 1 to 21 of the specification).

A. *Independent Claim 1*

Independent claim 1 is directed to a method of adjusting transmission power for base stations transmitting in macro-diversity in a mobile radio-communications system. In this method, a reference transmission power for the adjustment is signaled to each of said base stations together with an adjustment period. Also, in this method, each of the base stations periodically adjusts its transmission power to the reference transmission power at said adjustment period (Fig. 2; page 4, lines 1 to 28 and page 7, lines 1 to 18 and lines 33 to 35 of the specification).

B. *Independent Claim 6*

Claim 6 is directed to a radio network controller for adjusting transmission powers in base stations transmitting in macro-diversity in a mobile radio-communications system. The controller includes means for signaling a reference transmission power value for said adjustment, together with an adjustment period (Fig. 3; page 5, lines 7 to 22 and page 8, line 26 to page 9, line 21 of the specification).

C. *Independent Claim 9*

Independent claim 9 is directed to a base station for adjusting its transmission power when transmitting in macro-diversity in a mobile radio-communications system. The base station includes means for receiving a reference transmission power value for said adjustment, as

transmitted by a radio network controller together with an adjustment period and means for periodically adjusting its transmission power to said reference transmission power value, at said adjustment period (Fig. 3; page 5, lines 23 to 33 and page 9, lines 7 to 21 of the specification).

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There is only one issue on Appeal.

The only issue on Appeal is whether claims 1, 2, and 4-11 are improperly finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Appellant's Admitted Prior Art (hereinafter "APA").

VII. ARGUMENT

The only issue is whether the Examiner improperly finally rejected claims 1, 2, and 4-11 under 35 U.S.C. § 103(a) as being obvious over Appellant's Admitted Prior Art (hereinafter "APA"). Appellant respectfully requests the Board to reverse this final rejection at least because of the following arguments. Appellant addresses each of the finally rejected claims 1, 2, and 4-11, below. At least initially, Appellant's arguments focus on claim 1, as being the broadest independent claim rejected on this ground.

A. Exemplary Features of Claim 1

Independent claim 1 recites a unique combination of features including:

a reference transmission power for said adjustment is **signaled** to each of said base stations **together with an adjustment period**, and

wherein each of said base stations **periodically** adjusts its transmission power to said reference transmission power, **at said adjustment period** (emphasis added).

By way of an example, the parameters which are signaled to a base station include a reference power and **an adjustment period**. The adjustment period is such that a base station periodically adjusts its transmission power to the reference transmission power based on this signaled adjustment period. In other words, the reference transmission power is not changed (*i.e.*, not signaled) at each adjustment period. That is, in the exemplary embodiment, there is no need to signal updated values frequently even if the reference transmission power has changed. It is only necessary to perform regular adjustments even if they are performed on the most recently

signaled value for the reference transmission power, which does not necessarily correspond to an up-to-date value of the transmission power.

B. Prior Art (APA including WO 99/31819)

The WO 99/31819 discloses a radio network controller that determines an initial transmit power setting for the target base station and new transmit power settings for the serving base stations synchronized to a particular time t_0 . The initial and new transmit powers and the synchronizing time are provided to the respective base stations. Each base station may adjust its respective transmit power so that it is at the desired level at the synchronization time. (page 6, lines 24-27 cited by the Examiner). That is, in WO 99/31819, the synchronization time t_0 is provided to all the base stations involved in the handover. Each base station adjusts its respective transmit power so that it is at the desired level at the synchronization time t_0 (page 14, lines 3-5 cited by the Examiner). In other words, WO 99/31819 describes a synchronization time (or instant) being sent by the radio network controller to the base stations, and the base stations adjusting their transmit power at this synchronization time (or instant) (page 13, line 23 to page 14, line 5).

Similarly, the APA (page 3 lines 1-6 cited by the Examiner) discusses WO 99/31819 as a prior art reference in which each base station is informed of a synchronization instant simultaneously with a reference transmission power, so as to adjust transmission powers simultaneously amongst the various base stations. That is, the APA describes signaling a synchronization instant with a transmission power value, each time a transmission power

adjustment is to be performed. In other words, the APA describes a synchronization instant being sent by the radio network controller to the base stations, and the base stations adjusting their transmission power at this synchronization time (or instant) (page 3, lines 1-6 cited by the Examiner).

C. Examiner's Position

The Examiner appears to allege that signaling both the transmission power and a particular synchronization time (t_0) somehow discloses signaling both the transmission power and the adjustment period (*see* page 2 of the Final Office Action mailed June 6, 2007). In particular, the Examiner appears to allege that a synchronization instant disclosed in WO 99/31819, as described in the APA somehow discloses the adjustment period, as set forth in claim 1 (*see* Continuation Sheet of the Advisory Action mailed January 11, 2008).

D. Appellant's Position

Appellant respectfully submits that the APA (including WO 99/31819) fails to disclose or even remotely suggest *signaling* a reference transmission power for said adjustment together with *an adjustment period*, where the adjustment period is used to *periodically adjust* the transmission power to the signaled reference transmission power.

The APA, on page 2, lines 19 to 36 of the specification, recites:

When using marco-diversity transmission, it is also known to adjust the transmission power levels of the various base stations to which a mobile station is connected relative to one another so as to optimize the performance of the system, and in particular

so as to optimize its capacity. Thus, in general, a radio network controller (RNC) in the UMTS system which serves to control base stations determines the power to be used for transmission at an instant t_{n+1} for each of the base stations on the basis of the transmission powers at an instant t_n as reported by each of said base stations. Advantageously, the same transmission power is determined for the various base stations.

The transmission power value(s) as determined in this way (also referred to as reference transmission power(s)) are then signalled by the radio network controller to the various base stations which respond by adjusting their transmission powers on said reference transmission powers (emphasis added) .

As is visible from the above-quoted passage from the APA, there is no disclosure or suggestion of signaling an adjustment period and periodically correcting the transmission power at the signaled adjustment period. In the APA, the frequency of the corrections by the base stations are controlled by the frequency of the signaling of the reference power. In other words, it is the reference power that is signaled, each time a correction is performed. When the reference power is signaled, the base station corrects its transmission power based on the received reference power.

WO 99/31819 describes that the radio network controller determines an initial transmit power setting for the target base station and new transmit power settings for the serving base stations synchronized to a particular time. That is, the initial and new transmit powers and the synchronizing time are provided to the respective base stations. The synchronization time

indicates an instant when to adjust the transmit time so that the adjustments are simultaneous at a number of base stations. In other words, WO 99/31819 describes a synchronization time (or instant) being sent by the radio network controller to the base stations and the base stations adjusting their transmit power at this synchronization time (or instant) (page 3 of the APA and pages 13-14 of WO 99/31819).

However, the synchronization time is not an adjustment period. For example, claims 2 and 3 describe predetermined instants at which adjustments are performed. By simple claim differentiation, the synchronization time (or instant) cannot be both a predetermined instant and the adjustment period. In other words, the APA simply discloses transmitting a synchronization time or instant along with the transmission power each time a correction needs to be performed. The APA (including WO 99/31819) does not disclose or even remotely suggest performing **periodic** corrections using the signalled adjustment period. The APA (including WO 99/31819) simply discloses signalling a synchronization instant and not an adjustment period that is used to perform multiple adjustments. That is, the APA (including WO 99/31819) simply discloses providing a single instant for one adjustment and not a value for multiple (periodic) adjustments.

In short, the APA (including WO 99/31819) fails to suggest an adjustment period is sent by the radio network controller to the base stations and the base stations periodically adjusting their transmit power, according to this adjustment period. There is no disclosure or even remote suggestion of the adjustment period (for periodic adjustments) being transmitted/signaled to the base stations with the reference power. In short, in the APA, the power correction is determined

by the reception of the new reference power with the synchronization instant. In other words, in the APA, the new reference power with the synchronization instant is signaled for each power correction. As such, the APA requires frequent signaling because without signaling the reference power and the synchronization instant, the base station does not adjust its power (page 2, line 32 to page 3, line 32 of the specification). In sum, there is no disclosure or suggestion of signaling an adjustment period and periodically adjusting the transmission power to the reference transmission power at the adjustment period.

Therefore, “a reference transmission power for said adjustment is signaled to each of said base stations together with an adjustment period, and wherein each of said base stations periodically adjusts its transmission power to said reference transmission power, at said adjustment period,” as set forth in claim 1 is not disclosed by the APA, which lacks signaling the adjustment period and periodically adjusting the transmission power to the reference transmission power in the signaled adjustment period.

For at least these exemplary reasons, Appellant respectfully submits that independent claim 1 is patentable over the APA. Appellant respectfully submits that claims 2, 4, 5, and 10 are allowable at least by virtue of their dependency on claim 1.

Independent claims 6 and 9 recite features similar to the features argued above with respect to claim 1. Namely, independent claim 6 among a number of unique features recites “means for signaling a reference transmission power value for said adjustment to each of said base stations, together with an adjustment period,” and claim 9 recites a number of unique

features including “means for receiving a reference transmission power value for said adjustment, as transmitted by a radio network controller together with an adjustment period; and means for periodically adjusting its transmission power to said reference transmission power value, at said adjustment period.”

Since independent claims 6 and 9 contain features that are similar to the features argued above with respect to claim 1, those arguments are respectfully submitted to apply with equal force here. For at least substantially analogous exemplary reasons, therefore, Appellant respectfully requests the Examiner to withdraw this rejection of independent claims 6 and 9. Claims 7 and 8 are patentable at least by virtue of their dependency on claim 6 and claim 11 is patentable at least by virtue of its dependency on claim 9.

Appellant, therefore, respectfully submits that the claims are not obvious over the APA. The rejection is thus not supported by substantial evidence (or any credible evidence at all). The Examiner’s arbitrary and steadfast rejection of claims 1, 2, and 4-11 must be reversed.

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VIII. CONCLUSION

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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CLAIMS APPENDIX

CLAIMS 1, 2, and 4-11 ARE ON APPEAL:

1. A method of adjusting transmission power for base stations transmitting in macro-diversity in a mobile radio-communications system,

wherein a reference transmission power for said adjustment is signaled to each of said base stations together with an adjustment period, and

wherein each of said base stations periodically adjusts its transmission power to said reference transmission power, at said adjustment period.

2. A method according to claim 1, wherein said periodically-performed adjustments are performed at predetermined instants.

4. A method according to claim 1, wherein an updated value for the adjustment period can be signaled.

5. A method according to claim 1, wherein an updated reference transmission power value can be signaled.

6. A radio network controller, including, for adjusting transmission powers in base stations transmitting in macro-diversity in a mobile radio-communications system:

means for signaling a reference transmission power value for said adjustment, together with an adjustment period.

7. A radio network controller according to claim 6, comprising:

means for signaling an updated adjustment period value.

8. A radio network controller according to claim 6, comprising:

means for signaling an updated reference transmission power value.

9. A base station, including, for adjusting its transmission power when transmitting in macro-diversity in a mobile radio-communications system:

means for receiving a reference transmission power value for said adjustment, as transmitted by a radio network controller together with an adjustment period; and

means for periodically adjusting its transmission power to said reference transmission power value, at said adjustment period.

10. A mobile radio-communications system, comprising means for performing a method according to claim 1.

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11. The base station according to claim 9, wherein said periodically-performed adjustments are performed at predetermined instants.

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EVIDENCE APPENDIX:

NONE.

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RELATED PROCEEDINGS APPENDIX

NONE.